Appendix C

HIGHWAYS & ARTERIALS

May, 2001

2001 RTP Technical Appendix

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Highways & Arterials

Transportation System Setting

The Metropolitan Transportation System (MTS), which consists of existing multi-modal facilities having regional and national significance, is the backbone of our regional transportation system. The MTS can be broadly categorized into three networks: roadway, transit, and goods movement. The MTS roadways include freeways, regionally significant state highways and arterials, as well as currently approved congestion management plans. The MTS transit component includes the commuter rail network, the inter-city rail system, and the urban rail system, including light & heavy rail lines. The goods movement component of the MTS includes rail freight corridors and major truck routes using the freeways and regionally significant state highways and arterials. The primary purpose of the MTS is to distinguish the locally important facilities from those strategically significant at the regional and national level. There is a federal requirement to develop long-range plans that emphasize facilities serving regional and national functions. Such differentiation clarifies the issues so that the concepts can be directly applied to planning and policy issues having inter-county, interstate, and international implications.

In addition to the components identified under the MTS network, our regional transportation system includes minor arterials and major collectors in the roadway category, fixed route transit and other para-transit systems in the transit category, airports, seaports, and a non-motorized transportation network that includes bikeways and pedestrian walkways. This appendix deals with the highways and arterials component of the regional transportation system.

Highway and Arterial System

Regional and local roads are an integral part of the region's infrastructure. The vast majority of trips rely on the highway network, either for automobiles, buses, vanpools, trucks or in many cases even bicycles. In fact, 99 percent of all trips, including trips on buses, occur on the highway and arterial network. The regional and local highway system faces mounting congestion which affects personal mobility, freight movement and air quality. The preservation, management and selective expansion of this system are crucial to the region's economic vitality and the quality of life for the region's residents.

Existing System

In the current system, there are over 9,000 lane miles of freeway and High-Occupancy Vehicle (HOV) lanes linking the region. Additionally, there are 32,600 lane miles of major and minor arterials. These roadways are an integral part of the transportation system, often acting as alternative routes to freeway driving. (See Table C.1 which summarizes the key components of the region's Highway and Arterial Network.)

Table C.1

Highway and Arterial Network
(Lane Miles)

Facility	1997
Freeway	8,906
Principal Arterial	14,998
Minor Arterial	17,605
Major Collectors	8,262
HOV	582

Currently, there are approximately 580 lane miles of completed HOV system in the region. Most of the HOV system is open to vehicles with two or more occupants. The exceptions are the HOV lanes on I-10 (El Monte Busway), which requires a vehicle occupancy of three or more persons during peak periods. When the proposed plan is fully implemented, the regional HOV system will have about 1,300 lane miles.

In recent years a number of toll roads have been added to the transportation system mix. All of these new toll roads are privately funded:

- ü SR 91 Express Lanes, Orange County
- ü SR 73 San Joaquin Hills Transportation Corridor, Orange County
- ü SR 241/261/133 Foothill/Eastern Transportation Corridor, Orange County

Baseline Investments

Investment in the highway system has varied in the past fifty years. The 1950s and '60s were a period of major highway investment, as much of the freeway system was completed during these two decades. In the 1970s, due in large part to economic and environmental restraints, the emphasis shifted from building new highways to widening existing ones. The 80s and 90s have seen another shift towards building High-Occupancy Vehicle (HOV) lanes, rail facilities, and privately-funded toll roads. As the new millennium begins, the SCAG region continues its efforts to maintain existing infrastructure, add improvements where they will provide the most benefit, and utilize existing capacity more efficiently and effectively.

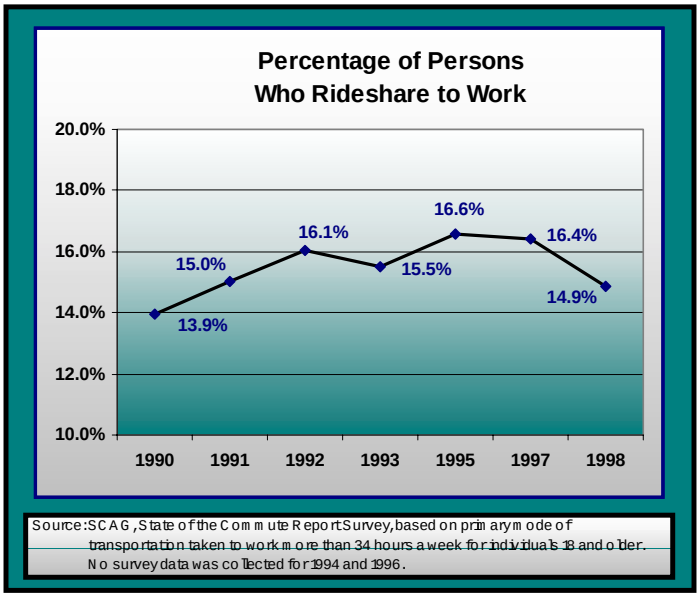
Table C.2 summarizes the increase in highway and transit network miles that the region is committed to funding and building in our baseline investments between 1997 and 2025. Our baseline investments include all committed projects in the 2000 Regional Transportation Improvement Program (RTIP), the Governor's Traffic Congestion Relief Program for which the county commissions have committed matching funds, and the TEA-21 priority projects for capital improvement as identified by the county commissions. The regionally significant baseline projects are shown in Exhibit 5.3. A complete list of the baseline projects is included in Appendix K.

Table C.2

2025 Baseline Improvements for Highways and Arterials (Lane Miles)			
Facility	**1997**	**2025 Baseline**	**Percent Increase**
Freeway	8,906	9,408	6%
Principal Arterial	14,998	16,405	9%
Minor Arterial	17,605	18,432	5%
Major Collectors	8,262	8,262	0%
HOV	582	1,058	82%

The highway projects identified in the Governor's Traffic Congestion Relief Plan (TCRP) can be viewed mostly as capacity enhancement projects. These projects are included as part of the baseline for the 2001 RTP. The Governor's plan devotes $948 million to highway-related projects, about 41 percent of the total spending proposed. The most notable of these are HOV gap closures on Interstates 405, 10, 5 and 215 as well as State Routes 91, 60 and 22. All of these projects are identified in the 1998 RTP as either baseline or constrained plan projects. Mixed flow, auxiliary lane, interchange improvement and signal improvement projects are also proposed in the TCRP and are consistent with the 1998 RTP.

Figure C.2



Both HOV lanes and transit will play an important role in the future of the regional transportation system, but both of these critical elements face continuing challenges. Although lane miles for HOV will continue to increase (by over 80 percent), the percentage of people who rideshare to work appears to fluctuate between 14 and 16 percent from 1990 through 1998 (See Figure C.2).

While the HOV lanes are utilized at 60 to 95 percent of capacity during peak periods, they are primarily being used by two-person cars, some three-person vehicles and some larger vehicles. Given the significant financial investment planned for HOV projects, it is important to assure that there is maximum use of HOV lanes by carpools and by vans and buses that can efficiently and effectively move larger numbers of people. This signifies the need to coordinate Transportation Demand Management (TDM) strategies to ensure maximum utilization of our HOV system.

HOV lanes will increase signficantly, but the other facilities will not keep pace with the expected 40 percent population growth. If we were to do nothing beyond completing committed (baseline) projects by the year 2025, our freeway network mixed-flow lane capacity would increase by only 6

percent and the arterial system will increase by about 7 percent (see Exhibit 5.3 for regionally-significant Baseline projects).

The congestion delay maps (Exhibits 5.1 and 5.4) show that the future transportation system is expected to be overwhelmed by new demand. With major congestion and air quality problems projected, it is critical that the $24.3 billion identified for new projects in the Regional Checkbook (assuming the availability of new revenues) be spent on those projects that perform best.

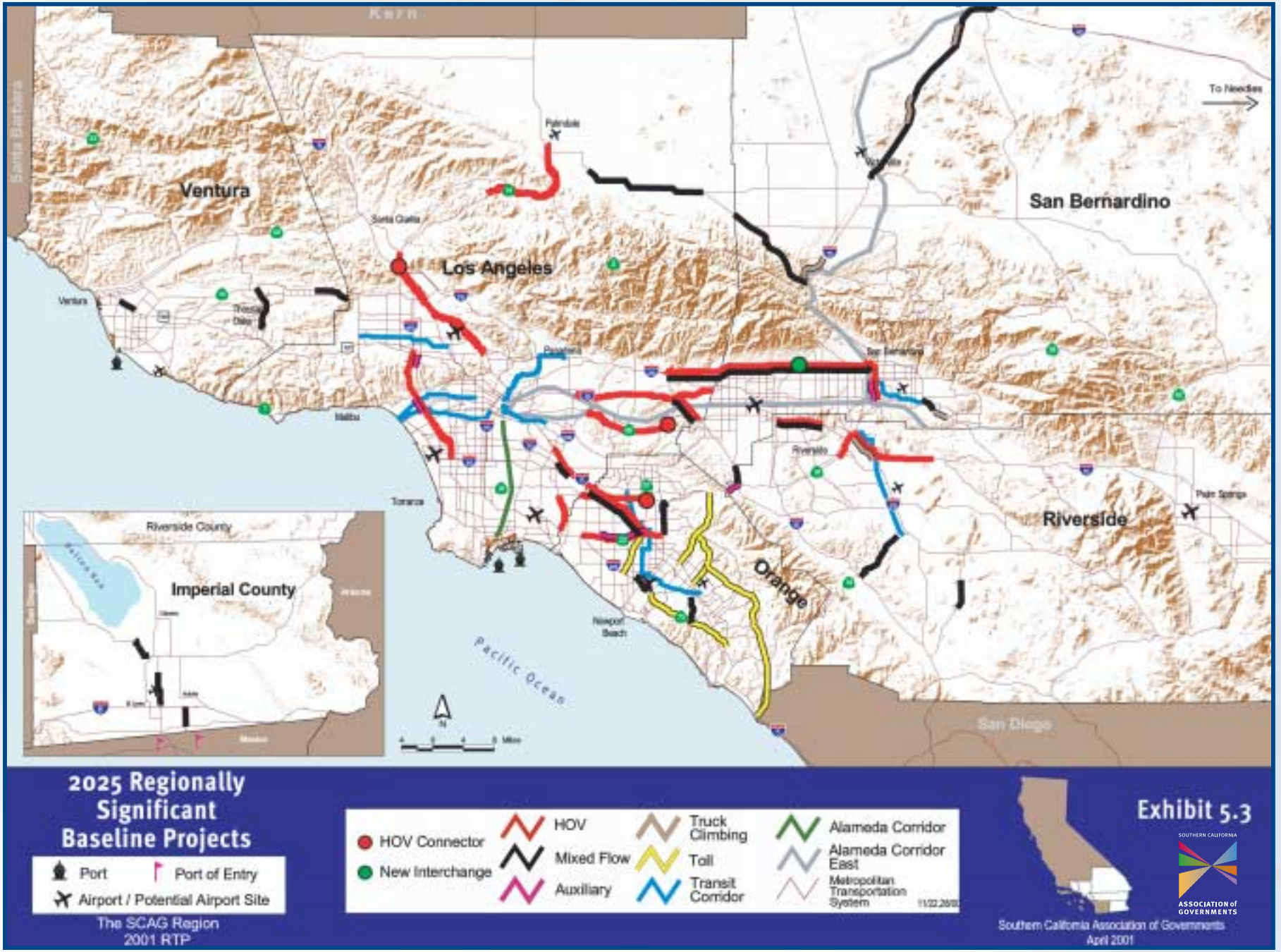
A comparison of the 1997 congestion map (Exhibit 5.1) with the 2025 Baseline congestion map (Exhibit 5.4) tells the following story:

- ü In 1997, 12 percent of the total freeway system was extremely congested during the peak hour. By 2025, estimates are that 26 percent will be extremely congested.
- ü In 1997, 18 percent of the average driver's mileage was spent driving in "stop and go" congested conditions. In 2025, based upon projections, that time will increase to 25 percent.
- ü Peak hour speeds on some the most congested freeways could deteriorate to less than 16 miles per hour in 2025.

Under the baseline scenario we could experience an increase in congestion delay, as a region, by over 100 percent by the year 2025. The average speed on our freeway system, in the congested direction during the morning peak period, could deteriorate to about 16 miles per hour. The aggregated daily vehicle hours spent in the region could increase by over 50 percent to 14 million hours. A 15-mile commute trip could take, on the average, about 45 minutes compared to 30 minutes in 1997. The most congested corridors, such as I-405, SR-91, I-5, US-101 and I-10 through the urban region, will continue to get worse. The overall investment target for the RTP is to provide maximum relief to the most heavily traveled commuter corridors.

1997 Base Year Freeway Congestion

2025 Regionally Significant Baseline Projects



2025 Baseline Freeway Congestion

Plan Investments

The baseline scenario assumes that no further transportation investments will be made in the region beyond what has been committed through the RTIP and the Governor's Plan. In essence, it provides a worst-case scenario with which to compare alternatives. The 2001 RTP represents a response to this scenario and an effort to improve the situation. The RTP is a synthesis of sub-regional and local input, task force and committee recommendations, technical analysis, and overarching regional concerns such as air quality conformity.

It is clear that the opportunities to expand our transportation system to keep pace with projected growth are limited. While population, employment, and vehicle miles traveled (VMT) are expected to grow by more than 40 percent by the year 2025, our transportation network in terms of lane and route miles, on the other hand, is expected to increase by less than 10 percent. Strategic capacity improvements can be combined with improved management of the regional freeway system and peak period travel demand reduction strategies to effectively meet the region's travel needs. The region needs additional innovative capacity enhancements, but as always, innovations must meet a benefit-cost test. The constraints, both financial and environmental, to expanding our system capacity are substantial. Given this reality, the basic strategy used for investment in our highway and arterial system can be summed up in the following guiding principles.

- ü Target capital improvement investments in projects that have the potential to maximize system capacity based on performance.
- ü Allocate adequate spending to operate and maintain the system so that the system can continue to function effectively and efficiently.
- ü Optimize the utilization of the available system by promoting demand management strategies and other trip reduction strategies.

The individual components of the transportation plan have been developed on this overall strategy. Table C.3 summarizes the increase in highway network lane miles between the proposed 2001 RTP and the Baseline in 2025. Though expanding slightly, most facilities will not keep pace with the expected 40 percent population growth.

Table C.3

Plan Improvements for Highway and Arterial Network
(lane miles)

	2025 Baseline	2025 Plan	Baseline-Plan % Increase
Freeway	9,408	10,076	7%
Principal Arterial	16,405	16,600	1%
Minor Arterial	18,432	19,445	5%
Major Collectors	8,262	8,426	2%
HOV	1,058	1,354	28%

The Plan projects will result in a 9% increase in average daily speeds and a 26% decrease in vehicle hours of delay. The congestion delay map for the Plan (Exhibit 5.11) shows improvement in travel conditions, particularly in San Bernardino and Riverside Counties. While conditions in Los Angeles County continue to be severe, there is some improvement on the I-5, SR-14, and SR-57 corridors.

The Plan contains over $10 billion in highway and arterial improvement projects in addition to already committed or programmed projects. Major categories of the proposed improvements for highways and arterials include HOV gap closures, HOV connectors, mixed flow improvements, toll lanes and high occupancy toll lanes as well as strategic arterial improvements. In addition, the Plan includes over $5 billion in improvements for truck lanes, truck climbing lanes, and railroad grade crossing improvements. The following provides a brief description of individual categories of highway and arterial improvements proposed in the Plan.

HOV Gap Closure

The completion of the HOV system will be an important step towards meeting future travel demand. A number of HOV projects proposed in the 1998 RTP have already been programmed in the current RTIP. The following table provides a summary of HOV gap closure projects proposed in the 2001 RTP beyond the baseline that are regionally significant.

Table C.4

HOV Projects			
Project	**Proposed Implementation Schedule**	**County**	**Project Development Requirement/Status**
I-405 NB (US-101 to Burbank Blvd)	2010	Los Angeles	PSR Needed
I-710 (I-10 to Huntington Dr)	2010	Los Angeles	PSR Needed
I-710 (Huntington Dr to I-210)	2020	Los Angeles	PSR Needed
SR-14 (Ave P-8 to Ave-L)	2015	Los Angeles	PSR Needed
I-5 (SR-1 to Avenida Pico)	2020	Orange	PSR Needed
I-15 (San Bernardino Co to SR-91)	2020	Riverside	PSR Needed
I-215 (SR-60/I-215/SR-91 to San Bernardino Co)	2020	Riverside	PSR Needed
I-215 (I-15 to s/o Nuevo)	2025	Riverside	PSR Needed
I-215 (Ramona Exwy to East Jct SR-60/I-215)	2025	Riverside	PSR Needed
SR-71 (San Bernardino Co to SR-91)	2015	Riverside	PSR Needed
I-10 (I-15 to Yucaipa)	2020	San Bernardino	PSR Needed
I-10 (Yucaipa to Riverside Co)	2025	San Bernardino	PSR Needed
I-15 (Riverside Co to I-215)	2025	San Bernardino	PSR Needed
I-15 (I-215 to D St)	2020	San Bernardino	PSR Needed
I-215 (Riverside Co to I-10)	2010	San Bernardino	PSR Needed
I-215 (SR-30 to I-15)	2025	San Bernardino	PSR Needed
Note: Typically, Project Study Reports (PSR) must be completed for these projects in order to compete in the Call for Projects for the RTIP.			
The total investment proposed for HOV completion is $1.2 Billion. The baseline projects are listed only in the Technical Appendix.			

HOV Connectors

HOV connectors are an important element of the regional HOV system. The connectors are constructed with drop ramps to the HOV lane along the freeway median to minimize weaving conflicts and maintain speeds. A number of HOV connectors are identified in the 2025 Baseline. The 1998 RTP identified two additional HOV freeway-to-freeway connector projects. While the cost effectiveness of HOV connectors appear questionable on a project by project basis, some investments in HOV connectors are justified by overall system performance. Most of the proposed HOV connectors are located in Orange County and a few are located in San Bernardino County. The following table provides a summary of HOV connector projects identified in the 2001 RTP as part of the constrained projects beyond the baseline.

Table C.5

HOV Connector Projects			
Project	**Proposed Implementation Schedule**	**County**	**Project Development Requirement/Status**
I-5 / SR-170	2025	Los Angeles	PSR Needed
I-5 / I-405	2025	Los Angeles	PSR Needed
SR-22 / I-5	2025	Orange	In Environmental
SR-22 / SR-55	2025	Orange	In Environmental
SR-22 / I-405	2010	Orange	In Environmental
I-405 / I-605	2010	Orange	In Environmental
SR-60 / I-215 E Jct east to SR-60	2010	Riverside	PSR completed/PAED pending
SR-60 / I-215 E Jct south to I-215	2025	Riverside	PSR Needed
I-10 / I-215	2025	San Bernardino	PSR Needed
I-10 / I-15	2025	San Bernardino	PSR Needed

The total investment proposed for HOV connectors is $461 Million. The baseline projects are listed only in the Appendix.

Mixed Flow

Gaps in the freeway network create traffic bottlenecks during peak use. Several new mixed flow freeway lanes are proposed to close gaps, increase capacity in certain congested commuter corridors and address county-to-county travel, especially from population-rich to employment-rich areas. Several routes are under consideration in the Four Corners area, where Los Angeles, Orange, Riverside and San Bernardino counties converge. SCAG, Caltrans, and Riverside and Orange counties are exploring methods to approach new corridor development in an environmentally sensitive manner. Most of these projects are proposed for inclusion in the 2001 RTP. Regionally significant mixed flow improvements, proposed in the 2001 RTP beyond the baseline projects, are shown in the following table.

Table C.6

Mixed Flow Projects			
Project	**Proposed Implementation Schedule**	**County**	**Project Development Requirement/Status**
SR-111 (SR-98 to I-8)	2010	Imperial	PSR Needed
SR-115 (Evan Hewes to SR-78)	2010	Imperial	PSR Needed
I-5 (Rosecrans to Orange Co)	2010	Los Angeles	PSR Needed
I-5 Ultimate – Interchanges from Orange Co to Rosemead Blvd	2025	Los Angeles	PSR Needed
I-710 (I-10 to Huntington Dr)	2010	Los Angeles	PSR Needed
I-710 (Huntington Dr to I-210)	2020	Los Angeles	PSR Needed
SR-57 / SR-60 Interchange	2025	Los Angeles	PSR Needed
SR-57 (auxiliary lanes Los Angeles Co to SR-22)	2010	Orange	PSR Needed
SR-91 (westbound auxiliary lane SR-57 to I-5)	2020	Orange	PSR Needed
SR-91 (auxiliary lanes SR-241 to SR-71)	2025	Orange	PSR Needed
I-10 (Monterey to Dillon)	2010	Riverside	PSR Needed
I-15 (SR-91 to SR-60)	2020	Riverside	PSR Needed
I-215 (Eucalyptus to Columbia)	2025	Riverside	PSR Needed
I-215 (I-15 to s/o Nuevo)	2025	Riverside	PSR Needed
SR-71 (San Bernardino Co to SR-91)	2015	Riverside	PSR Needed
I-215 (I-10 to SR-30)	2010	San Bernardino	PSR Needed
I-215 (SR-30 to I-15)	2025	San Bernardino	PSR Needed
SR-30 (Highland to I-10)	2020	San Bernardino	PSR Needed
SR-58 (Kern Co to I-15)	2010	San Bernardino	PSR Needed
US-395 (I-15 to n/o Desert Flower Rd)	2020	San Bernardino	PSR Needed
SR-118 (Tapo Cyn to New LA Ave)	2015	Ventura	PSR Needed

The total investment proposed for mixed flow improvements is $5.4 Billion, including new corridors. The baseline projects are listed only in the Appendix.

Toll Lanes and HOT Lanes

Proposed new HOT lane facilities include expanded capacity parallel to SR-91 to address east/west congestion in the Riverside County area. While additional work is in progress through the CETAP process to identify and study the feasibility of specific alignments in this corridor, this plan acknowledges the need for additional capacity in this corridor.

Table C.7

Toll Corridor Projects			
Project	**Proposed Implementation Schedule**	**County**	**Project Development Requirement/Status**
SR-241 to Riverside Co	2010	Orange	PSR Needed
Orange Co to I-15	2010	Riverside	PSR Needed

The total investment proposed for toll corridor projects is $300 Million in public funding and $1.3 Billion in private funding. The baseline projects are listed only in the Appendix.

Community and Environmental Transportation Acceptability Process (CETAP)

Agencies involved with surface transportation projects needing FHWA and FTA action under the National Environmental Policy Act (NEPA) are expected to sign a memorandum of understanding (MOU) in conjunction with Section 404. (The Federal Clean Water Act, Section 404, requires a US Army Corps of Engineers permit for discharge of dredged or fill material into waters of the United States.) Agencies signing this MOU are committed to integrating NEPA and Section 404 in their transportation planning, programming and implementation of such projects so as to avoid adverse impacts to waters of the United States and to sensitive, threatened and endangered species therein, SCAG has executed such an MOU in December 1993 between various local, regional, state and federal agencies, which will be followed vis a vis any proposed toll roads or any other projects covered under Section 404.

CETAP is one part of a three-part planning and implementation program called the Riverside County Integrated Project (RCIP), being undertaken by the County of Riverside and the Riverside County Transportation Commission (RCTC). The other two parts are the developing of a Multi-Species Habitat Conservation Plan (MSHCP) and a new county General Plan. The CETAP is designed to address a comprehensive and interrelated analysis of transportation needs, environmental considerations and land use options. A central purpose of CETAP process in Riverside County is to examine the need and opportunities for the development of new or expanded transportation corridors in Western Riverside County.

Strategic Arterial Improvements/Smart Street Improvements

Arterial roads account for over 65 percent of the total road network and already carry over 50 percent of total traffic. As it becomes more difficult to add lanes to existing freeways or build new freeways, maximizing the potential capacity of arterials becomes an attractive option to increase overall system capacity in already-developed areas. The Strategic Arterial Improvement concept could involve a combination of widening, signal prioritization and other Intelligent Transportation Systems (ITS) deployment and grade separation at critically high-volume intersections to enhance the flow speed and capacity of the arterial. Such improvements could increase capacity of an arterial facility by as much as 50 percent at a relatively modest cost of $3 to $5 million per mile. A number of arterial corridors have been identified for such improvements in the proposed plan, located mostly in Orange and Riverside counties. The following table provides a list of Smart Street Improvements proposed in the 2001 RTP beyond the baseline.

Table C.8

Smart Street Projects			
Project	**Proposed Implementation Schedule**	**County**	**Project Development Requirement/Status**
SR-133 Laguna Canyon Rd	2010	Orange	Feasibility Study Needed
Adams Ave	2010	Orange	Feasibility Study Needed
Bolsa Ave/First St	2010	Orange	Feasibility Study Needed
Crown Valley Pkwy	2010	Orange	Feasibility Study Needed
El Toro Rd	2010	Orange	Feasibility Study Needed
Harbor Blvd	2010	Orange	Feasibility Study Needed
Irvine Blvd/Trabuco Rd	2010	Orange	Feasibility Study Needed
Jamboree Rd	2010	Orange	Feasibility Study Needed
Newport Blvd	2010	Orange	Feasibility Study Needed
Orangethorpe Ave	2010	Orange	Feasibility Study Needed
Pacific Coast Hwy	2010	Orange	Feasibility Study Needed
Tustin Ave/Rose Dr	2010	Orange	Feasibility Study Needed
Valley View St	2010	Orange	Feasibility Study Needed
Warner Ave	2010	Orange	Feasibility Study Needed
Hamner Ave/Main St	2015	Riverside	Feasibility Study Needed
Limonite Ave/Rubidoux Blvd	2020	Riverside	Feasibility Study Needed
Magnolia Ave/Main St	2015	Riverside	Feasibility Study Needed
The total investment proposed for Smart Street improvements is $390 Million.			

Arterial Improvements

In addition to the specific arterial improvements identified under the Smart Street Improvement Program, this plan proposes a significant increase in funding for arterial improvements and capacity enhancements (see Table C.9). Even with the increased funding, the total cost of the arterial improvements identified by the subregions far exceeds available funds.

Table C.9

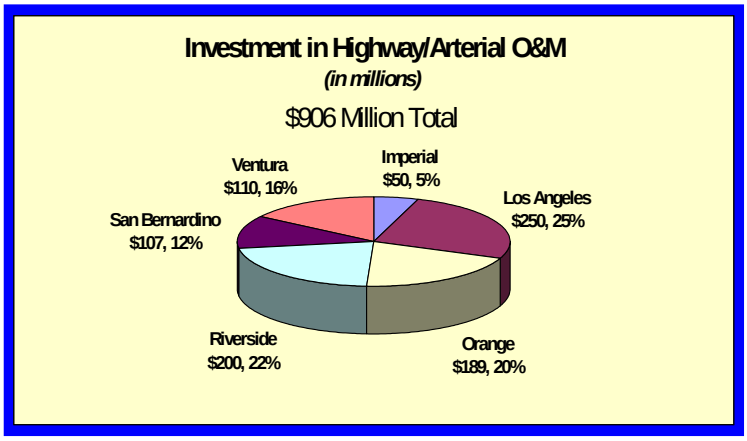
Investment in Arterials	
County	**Investment**
Imperial	$194,000,000
Los Angeles	$488,000,000
Orange	$565,000,000
Riverside	$400,000,000
San Bernardino	$607,000,000
Ventura	$135,000,000
Regional Total	**$2,389,000,000**

A complete list of eligible arterial improvements is contained in the Technical Appendix. For implementation purposes, the implementing agencies will have the discretion to prioritize arterial improvements from this list based on performance criteria, to the extent that the allocated funding is available. For the purposes of evaluating the performance of the 2001 RTP as a constrained multi-modal system, arterial improvements were used within the available funding capacity as identified in the Plan.

Maintaining and Optimizing the Existing System (Operations and Maintenance)

With the current backlog of highway and arterial maintenance and the pavement deterioration that goes with an aging roadway system, costs will increase dramatically through the RTP horizon year to keep the highway system operational. The 2001 RTP identifies additional funds, principally for arterials, to minimize roadway and bridge decay. Recent studies have also identified an increased cost to drivers as under-maintained roadways degrade tires and shock absorbers, creating wear and tear on engines and connections throughout a vehicle. Providing additional funding to improve pavement conditions before roadbed deterioration requires full rehabilitation and would result in substantial maintenance savings to the region.

Figure C.3



Preliminary analysis indicates that investment in proper ongoing maintenance would pay dividends of more than triple the cost. The funding estimates for the 2001 RTP call for a $63 billion investment in operations and maintenance of the existing system (including transit) and the baseline projects, which is a $25 billion increase over the 1998 RTP. Additional O&M funding, beyond maintaining the existing system proposed in the Plan, could also include significant improvements such as signal replacements and upgrades, traffic detection improvements, integration and computer control of signal systems, optimization of turning movements, and other means of maintaining or enhancing operations of the existing system, as prioritized by the implementing agencies. Proposed additional O&M funding is summarized by each county in the above Figure C.3.

Soundwalls

Soundwalls is a regional issue associated primarily with freeway improvements. Federal and State laws require construction of noise barriers along freeways under the Community Noise Abatement Program and as part of new freeway construction projects and freeway widening/capacity enhancement projects on existing freeways. Although a separate funding category for soundwalls is not proposed in the 2001 RTP, the Plan acknowledges the need. All funding needs identified for freeway expansions and improvements include costs for retrofit soundwalls.

Parking Facilities

Parking is an integral but often forgotten aspect of the transportation system. By definition, every automobile trip begins and ends with a parking space. This means that for almost every automobile that exists, there is a parking space at home, another at work, yet another at the grocery store, and so on—the resources devoted to building and maintaining parking facilities are considerable. The development and operation of parking facilities are generally under the purview of local governments

and private developers. Thus, inter-agency coordination and public-private cooperation are necessary to ensure that the region's parking needs are met as growth brings with it congestion, traffic, and greater demand.

At the same time, the pricing and availability of parking must be balanced with the overall transportation goals and objectives of the region. Planners have come to realize that regulations affecting the cost and availability of parking have a significant impact on a multitude of important issues such as housing affordability, travel behavior and mode choice, and even land use density and sprawl. For example, rather than just providing more parking where there is more activity, planners and policymakers can adjust parking prices and availability to encourage more efficient alternative modes such as public transit, walking, and bicycling. Planners can also utilize existing parking facilities more efficiently and effectively with policies such as shared parking, where multiple businesses such as a bank (that serves mainly daytime customers) and a restaurant (that serves mainly nighttime customers) use the same facility instead of having two separate ones.

The bottom line is that the growth in total travel demand—resulting from the overall growth in population, employment and housing—as well as the distribution of this growth are likely to generate tremendous demand for parking spaces. The region must be prepared to deal with the parking issue in a larger context of the regional transportation system and planning and development efforts. In order to maintain the region's economic competitiveness, the region must either build additional parking facilities to keep up with future growth or develop adequate alternative transportation choices that would encourage the use of public transportation and/or high occupancy vehicles that would offset demand for more parking spaces. These are policy choices that the region would have to make to deal with the parking issues in the future. These are also policy choices that would have to be made with a full assessment of the implications to our regional transportation finance.

Truck Lanes and Truck Climbing Lanes

Trucks support the region’s manufacturing industry and are essential to the intra-regional distribution of consumer goods. Major freeways that could significantly benefit from separate truck facilities are identified below. Currently, these corridors carry high volumes of truck traffic, which contribute to substantial peak hour delay and unsafe traffic conditions related to the interweaving of trucks and automobiles. The current regional heavy duty truck volume is estimated to increase by over 60 percent through 2025. In an effort to improve throughput for trucking and to ensure the continued vitality of the goods movement sector, SCAG is reviewing design options for truck lanes and truck climbing lanes with Caltrans and goods movement stakeholders.

The truck lanes are assumed to be separate lanes constructed along the outside of the freeway with limited direct access to and from arterials. These truck lanes can serve as a system for moving commercial trucks in a more efficient and less congested manner. Truck lanes will be grade separated from existing freeway ramps to minimize conflict between vehicles. Where sufficient right-of-way is not readily available, new mixed flow or HOV lanes could be placed on aerial structures so that existing lane space could be utilized for additional truck facilities. Tolled truck lanes are proposed to accommodate two lanes in each direction, which are viewed as the optimal configuration for truck facilities. The estimated total cost of the truck lane projects included in the Plan is $4.3 billion for the SR-60 truck lanes. Approximately 70 percent or $3 billion of this cost is assumed to be publicly funded and the remaining $1.3 billion will be financed privately.

Approximately $700 million in public funding and $300 million in private funding is allocated for the truck lanes on I-15.

Table C.10

Truck Lane Projects			
Project	**Proposed Implementation Schedule**	**County**	**Project Development Requirement/Status**
SR-60 (I-710 to San Bernardino County)	2010	Los Angeles	Preliminary Feasibility Study Nearly Completed
SR-60 (Los Angeles County to Riverside County)	2010	San Bernardino	Preliminary Feasibility Study Nearly Completed
SR-60 (San Bernardino County to I-15)	2010	Riverside	Preliminary Feasibility Study Nearly Completed
I-15 (SR-60 to San Bernardino County)	2020	Riverside	Preliminary Feasibility Study to be started in calendar year 2001
I-15 (Riverside County Line to US-395)	2020	San Bernardino	Preliminary Feasibility Study to be started in calendar year 2001

A total of $3.64 Billion in public funding and $1.62 Billion in private funding is proposed.

New truck climbing lanes are expected to be of similar design and configuration to the existing truck climbing lane facilities. Truck climbing lanes are additional lanes located on the outside of the freeway in an uphill direction, which permit slower moving trucks to operate at their own pace without reducing the speed of mixed flow traffic. This facility category may also include downhill truck descending lanes/escape ramps, although the estimated cost of these lanes is relatively small. In addition to the truck climbing lanes listed on Table C.11, it should be noted that truck climbing lanes are already programmed in the current RTIP for I-215 in the vicinity of UC Riverside and Box Springs in Riverside County; for I-10 from Ford to Yucaipa Blvd.; and for I-15 along the Cajon Pass and near Barstow and Baker.

Table C.11

Truck Climbing Lane Projects			
Project	**Proposed Implementation Schedule**	**County**	**Project Development Requirement/Status**
I-15 (Devore to Summit)	2010	San Bernardino	PSR Needed
SR-57* (Lambert to Tonner)	2010	Orange	PSR Needed

*The SR-57 truck climbing lane is included in a project to provide auxiliary freeway lanes along SR-57 between SR-22 and the LA County Line, costing $186 million (not included as part of the truck climbing projects). The truck climbing lane would be in the northbound direction. This project is included in the highway section of the Plan and is shown here for information purposes only.

The following truck lane projects will require a preliminary study to determine the willingness and interest of the private sector to participate in funding (through tolls, user fees or other measures) and at what level.

Table C.12

Truck Lane Study Projects			
Study	**Proposed Implementation Schedule**	**County**	**Project Development Requirement/Status**
I-5 (I-605 to SR-14)	To be determined	Los Angeles	Preliminary Feasibility Study Needed
I-5 (SR-14 to SR-126)	To be determined	Los Angeles	Preliminary Feasibility Study Needed
I-710 (SR-60 to Port of Long Beach)	To be determined	Los Angeles	Preliminary Feasibility Study Needed

Preliminary estimates are that the I-710 truck lane project would cost $1.4 billion and the I-5 truck lane project from I-605 to SR-14 would cost $ 3.1 billion (the short segment from SR-14 to SR-126 would cost an additional $113 million).

Another project that could significantly improve truck traffic is the SR-58 mixed flow truck route project in San Bernardino County. This would extend from the LA County line to I-15 at an estimated cost of $208.8 million. This project is included in the highway section of the 2001 RTP.

ACTION *– Develop an effective cost sharing method between public and private sectors for the construction and operation of truck facilities. Maintain an open dialogue on an approach to develop financing that is both adequate and equitable between counties.*

ACTION *– Develop a truck lane major investment study (MIS). The MIS process, and other means, should be used to evaluate the routes included in the RTP and other potential routes as well.*

ACTION *– Support the development and construction of dedicated truck lane facilities along freight corridors as a system.*

ACTION *– Develop criteria and standards for interchanges and ramp access from truck lanes to intermodal facilities to help prioritize projects within a constrained financial base.*

Railroad Grade Crossings

Regional rail freight movements often conflict with highway commuter and goods movement traffic. With the anticipated increase in port traffic and total train movements of all kinds, substantial additional delay for passenger vehicles and trucks can be expected at grade crossings. To avoid these delays, grade separations carrying arterials under or over rail lines carrying substantial amounts of freight from the ports are recommended along critical routes such as the Alameda Corridor East, including the Los Angeles-Orangethorpe-Riverside rail freight corridor (Orange County Gateway) (See ***Table 5.13***).

Table 5. 13

Grade Crossing Corridor Projects

Project	Proposed Implementation Schedule	County	Project Development Requirement/Status
Imperial	2020	Imperial	Individual crossings studied
Los Angeles (including Gateway Cities, North Los Angeles County)	2025	Los Angeles	Feasibility study completed/ Individual crossings studied
Orangethorpe	2010	Orange	Feasibility study completed; further study underway as the ONTRAC or Orange County Gateway Corridor
Orange-Olive	2010	Orange	Feasibility study completed
Riverside	2025	Riverside	Feasibility study completed
San Bernardino	2025	San Bernardino	Feasibility study completed

A total of $1.8 Billion in public funds and $318 Million in private funds is proposed.

A regional grade crossing improvement program is under development and will identify the critical grade crossing projects including grade separations and at-grade crossing safety projects for both commuter and freight rail in the region. As part of the improvement program, a financing program will be prepared.

> ***ACTION –*** *Support the subregions in obtaining funding for grade crossing studies.*
>
> ***ACTION –*** *Construct grade separations where streets and highways cross regional rail lines. Study the funding mechanisms for grade crossing improvement projects to meet the needs of the entire region.*
>
> ***ACTION –*** *Recognize the need for additional funding for grade crossing improvement projects to relieve truck and other highway congestion because current program funding needs exceed available public and private funding.*

Alameda Corridor

The Alameda Corridor is a 20-mile rail freight corridor from the Ports of Long Beach and Los Angeles to Downtown Los Angeles, comprising railroad capacity (track and signaling) improvements and grade separations of the entire rail line. It includes parallel arterial improvements to expedite truck movements. Improvements along the corridor will cost $1.9 billion to be funded by the Ports of Long Beach and Los Angeles, federal loans as well as Surface Transportation Program (STP) and Congestion Mitigation and Air Quality (CMAQ) funds. The 2001 RTP supports the completion of the corridor program to consolidate rail traffic and improve highway truck access.

> ***ACTION*** *-- Alameda Corridor Transportation Authority to complete the Alameda freight movement corridor program.*

Alameda Corridor East and other Main Line Railroad Corridors

The Union Pacific (UP) Railroad segment of the Alameda Corridor East (ACE) is a 55-mile rail corridor from East Los Angeles to Colton Crossing in San Bernardino County. The estimated cost for grade crossing improvements and separations for 55 grade crossings within LA County, from downtown Los Angeles to Pomona, is included in the baseline. The Governor's Traffic Congestion Relief Program includes additional funding for the Alameda Corridor East in the San Gabriel Valley in Los Angeles County. In addition, TEA-21 funds have been earmarked for this program. A full funding program including local, state, federal and private resources is under development.

A continuation of the UP segment of ACE from Pomona to Colton Crossing in San Bernardino County has been studied by the San Bernardino Associated Governments (SANBAG) as part of a larger grade crossing study in that county. The Governor's Traffic Congestion Relief Program, specifies that railroad to railroad grade separation at Colton Crossing be constructed to eliminate conflicts between railroad passenger and freight traffic where the east-west UP Alhambra/Yuma Line crosses the north-south BNSF San Bernardino Subdivision (also used by UP).

The Orangethorpe Corridor component of ACE comprises 15 grade crossings extending about seven miles across northern Orange County, along the Burlington Northern-Santa Fe Railroad. It is part of a much longer rail corridor (about 60 miles) from downtown Los Angeles to Colton Crossing via Riverside. The Orangethorpe Corridor is partially funded in the baseline. Further study of potential track lowering through Placentia is currently under way as part of the Orange County Gateway Project, now called the Orange-North America Trade Rail Access Corridor (ONTRAC). The Governor's Traffic Congestion Relief Program includes some of the funding for the Orangethorpe Corridor. Riverside County has recently completed a study of the ACE through Riverside and Colton Crossing.

Other ACE studies of the railroad main line corridors in San Bernardino and Riverside Counties have also evaluated grade crossings along the UP Yuma Main Line extending east from Colton to Indio (in the Coachella Valley) and the BNSF/UP Cajon Line north from Colton. The Gateway Cities Grade Crossing Program would improve railroad-highway crossings in the heavily industrialized area north of the Ports of Los Angeles and Long Beach. Finally, improvements will be made along

the Orange-Olive corridors in Orange County, between Fullerton/Placentia and the San Diego County line.

Improvements to the main line railroad corridors will extend many of the benefits of the Alameda Corridor eastward, providing a conduit for Pacific Rim trade. These corridor improvement projects will reduce delay to cars and trucks as well as lower noise and emissions where grade separations and widening projects. They will also improve safety at all crossings that are upgraded—reducing the potential for accidents and possible disruptions of the flow of international and domestic rail freight to the rest of the nation.

> ***ACTION –*** *Conduct a multi-county study of the grade crossing improvement needs for the Alameda Corridor East and the Los Angeles-Orange County-Riverside main line rail.*

2025 Plan Freeway Congestion